UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,465	03/28/2001	Robert James Bays	6527/53616	5652

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EXAMINER
LEVITAN, DMITRY

ART UNIT	PAPER NUMBER
2662	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/820,465	BAYS ET AL.
	Examiner	Art Unit	
	Dmitry Levitan	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-37_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-32 and 35-37_ is/are rejected.

7) ☒ Claim(s) _33 and 34_ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _07 February 2002_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All   b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _09/06/02, 08/07/03_.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☒ Other: _IDS 04/08/04, 01/18/02_.

Drawings

The drawings were received on 02/07/02. These drawings are approved.

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2.   Claims 21-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with

the enablement requirement. The claim(s) contains subject matter which was not described in

the specification in such a way as to enable one skilled in the art to which it pertains, or with

which it is most nearly connected, to make and/or use the invention.

The specification does not provide sufficient details to enable a skilled in the art to make and use

the invention because it does not adequately describe the following:

Regarding claim 21, how to inject the route to the broadcast address that includes the first peer

having reachability to the network destination as a host route into a routing system;

The specification does not provide enough details about the structure and operation of the

elements associated with the above identified claimed features to enable one skilled in the art to

make and use the invention without undue experimentation.

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2.   Claims 2, 3 and 21-24 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

3.   Claim 2 recites the limitation "the configuration of a routing system" in lines 1 and 2.

There is insufficient antecedent basis for this limitation in the claim.

4.   Claim 21 limitation "testing the performance of the path through the first peer" is unclear,

because it is not understood what path is tested.

5.   Claim 21 limitation "inject the route to the broadcast address that includes the first peer"

is unclear, because it is not understood what includes the first peer: the route or the address.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Thebaut (US

5,889,953).

3.   Regarding claims 1 and 4, Thebaut teaches a routing control device (configuration

policies 115, policy driver 116, trigger 113 and action space 117 on Fig. 6 and 6:49-67, 7:1-2)

comprising:

a routing control database storing a routing configuration policy (routing control as part

of outbound policies governing the network connectivity 8:18-28, including routing policy

14:62-67 and 15:1-5, located in memory 192 of the control device PC implementation, shown on Fig. 15 and 16:54-65) ;

a routing control module operable to enforce the routing configuration policy (action space 117 on Fig. 6 and 6:49-67, 7:1-2 enforcing configuration policies/traffic engineering 5:14-27) to a routing system (network 118 on Fig. 6) operably connected thereto.

4.   Regarding claims 2 and 3, Thebaut teaches translating the routing configuration policy into set of rules (active policies generating set of active rules 9:7-21) check the rules for conflict (9:41-50) and modify the configuration of the routing system to resolve the conflict (apply resolution to the source and destination object sets 9:56-60).

5.   Claims 6-10, 13-15, 18-22, 25, 29-31 and 35-37, are rejected under 35 U.S.C. 102(e) as being anticipated by Beshai (US 6,768,718).

6.   Regarding claims 6-8, 18, 37, Beshai teaches a routing control device (Network controller 104 on Fig. 1 and 4:32-62) connected to a routing system (Fig. 1 and 4:47-53), comprising:

    a.   A routing path preference evaluator (overall routing table, comprising route sets 6:15-23, wherein route set contains different links which are selected and ranked 1:50-57); and

    b.   A path preference applicator operable to apply path preferences (distribute the table to each node in the network 6:24-30) to a routing system (nodes 102 A-E on Fig. 1).

7.   Regarding claims 9, 13, 19, Beshai teaches evaluating a routing path according to a performance metric (reliability and delay 1:43-47).

8.   Regarding claim 10, Beshai teaches load balance traffic among the plurality of inter-

domain peers (load-adaptation method to avoid overloading links 2:30-45).

9.   Regarding claim 14, Beshai teaches the path preference evaluator query a central source

of path preference data (checking the traffic information against the threshold data, inherently

stored at a central source of path preference data 6:37-40).

10.   Regarding claim 15, Beshai teaches evaluating routing paths with respect to a plurality of

metric tests (evaluating route cost 9:27-32 and traffic demand 9:33-42 for each path).

11.   Regarding claim 20, Beshai teaches a method , wherein the routing system exchanges

routing policy data with peers over the computer network (inherently part of the system, because

Beshai teaches network controller distributed among the nodes 4:60-63 and to perform the

system routing, nodes have to exchange routing policy data with each other), comprising:

Applying a preferred path to the routing system (distributing route set to nodes 6:14-27);

Monitoring the system for withdrawal of the preferred path (monitoring links for overload and

redirect the traffic 2:30-34) ;

Applying next preferred path to the system in response to the path withdrawal (using an alternate

route from the set 2:35-45).

12.   Regarding claim 21 (as understood), Beshai teaches a routing control method comprising

        a) Receiving a network destination (selecting a sink node of network on Fig. 9 and 9:8-

        17);

        b) Determining the broadcast address corresponding to the destination (inherently part of

        the system, because network controller needs the destination address to communicate

        with the destination node);

c) Determining the peers having reachability to the destination (identifying nodes of the

network on Fig. 9 with associated cost);

d) Injecting a route to the address that includes the first peer (inherently part of the

system, because all source and destinations sets have to be identified 9:20-25);

e) Testing the path between the destination and first peer using metrics (quantify the

traffic demand as shown on the traffic matrix 1100 on Fig. 11 and 9:33-42);

f) Repeating steps d and e for all peers (creating matrix 1100 on Fig. 11);

g) applying the path with the best metrics (selecting and applying the shortest route

considering the route traffic load 3:15-34).

13.   Regarding claim 22, Beshai teaches monitoring the system for withdrawal of the

preferred path (monitoring links for overload and redirect the traffic 2:30-34) ;

Applying next preferred path to the system in response to the path withdrawal (using an alternate

route from the set 2:35-45).

14.   Regarding claims 25, 29, 30, 35, Beshai teaches a system with routing policies in

connection with a network (Fig. 1 and 4:32-62), comprising:

a plurality of data collectors (node controllers 106 of data nodes 102 on Fig. 1), operable to

define and test traffic paths on the network (route vacancy 5:47-52) and generate path preference

data (allocating connection request to the appropriate route set 5:57-60);

a central server connected to the controllers to receive and merge the data from the collectors

(network controller 104 on Fig. 1 and 2:47-52);

a routing control device connected to the server, wherein the routing device can query the server

for a preferred path (sending the updated route vacancy to the network controller and receiving

in response from the network controller new routing paths 5:60-67 and 6:1-14).

15.   Regarding claim 31, Beshai teaches creating a Table 1000 on Fig. 10, including routes

with intermediate nodes (for example DCA) for the network shown on Fig. 9, wherein the traffic

load/testing is performed for all nodes and stored in the network controller memory (4:47-60).

16.   In addition, regarding claims 35 and 37, Beshai teaches the data collectors collocated

with the respective network nodes (Fig. 1).

17.   Regarding claim 36, Beshai teaches testing the validity of the path (path traffic load 3:15-

33).

Claim Rejections - 35 USC § 103

18.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

19.   Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thebaut in view of

Beshai (US 123456789).

Thebaut substantially teaches all the limitations of claims 1 and 4.

Thebaut does not teach to evaluate routing paths and apply the preferred paths to the network.

Beshai teaches how to evaluate routing paths and apply the preferred paths to the network (2:30-

55). It would have been obvious to one of ordinary skill in the art at the time the invention was

made to add evaluating routing paths and applying the preferred paths of Beshai to the system of

Thebaut to improve the system routing implementation.

20.   Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beshai.

Beshai substantially teaches all the limitations of claims 6 and 10.

Beshai does not teach plurality of destination networks and balancing the traffic load for the

networks.

Official notice is taken that plurality of destination networks and balancing the traffic load for

the networks is well known and expected in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made

to add plurality of destination networks and balancing the traffic load for the networks to the

system of Beshai to improve the system load balancing operation with several networks.

21.   Claims 16, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Beshai.

Beshai substantially teaches all the limitations of claims 15 and 21.

Beshai does not teach applying weights to a plurality of metrics to calculate the outcome.

Official notice is taken that applying weights to a plurality of metrics to calculate the outcome is

well known and expected in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made

to add applying weights to a plurality of metrics to calculate the outcome of the system of Beshai

to improve the system routing in multiple metrics environment.

22.   Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beshai in view of

admitted prior art (US 123456789).

Beshai substantially teaches all the limitations of claims 6 and 7.

Beshai does not teach using BGP protocol.

Admitted prior art teaches using BGP protocol (page 1 of the disclosure). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add using BGP protocol of admitted prior art to the system of Beshai to incorporate popular protocol in the system.

23.   Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beshai.

Beshai substantially teaches all the limitations of claim 25.

Beshai does not teach retrieving and assembling the topology of the network.

Official notice is taken that retrieving and assembling the topology of the network is well known and expected in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add retrieving and assembling the topology of the network to the system of Beshai to improve the system routing capabilities.

24.   Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beshai.

Beshai substantially teaches all the limitations of claims 25.

Beshai does not teach the data structure as a tree with a collector as a root of the tree.

Official notice is taken that organizing the data structure as a tree with a collector/node as a root of the tree is well known and expected in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made organizing the data structure as a tree with a collector/node as a root of the tree in the system of Beshai to improve the system multicasting capabilities.

25.   Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beshai in view of

Kodialam (US 123456789).

Beshai substantially teaches all the limitations of claims a1a.

Beshai does not teach defining the ingress interfaces of a node and heuristically determining the

egress interfaces.

Kodialam teaches defining the ingress interfaces of a node and heuristically determining the

egress interfaces (3:50-67 and 4:1-5). It would have been obvious to one of ordinary skill in the

art at the time the invention was made to add defining the ingress interfaces of a node and

heuristically determining the egress interfaces of Kodialam to the system of Beshai to improve

the system multicasting capabilities.

Allowable Subject Matter

26.   Claims 33 and 34 are objected to as being dependent upon a rejected base claim, but

would be allowable if rewritten in independent form including all of the limitations of the base

claim and any intervening claims.

Conclusion

27.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Rexford   US006633544B1   Efficient precomputation of routes.

Chen   US005831975A   System and method for multicasting.

Cox   US006172981B1   Method and system for network routing.

Salkewicz   US006609153B1   Domain isolation through virtual network machines.

Gai   US006167445A   Method and apparatus for QoS policies.

Lewis   US005872928A   Method and apparatus for defining and enforcing policies.

Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Dmitry Levitan whose telephone number is (571) 272-3093. The
examiner can normally be reached on 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the
organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent
Application Information Retrieval (PAIR) system. Status information for published applications
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system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR
system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dmitry Levitan
Patent Examiner.
09/24/04

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